



Rev. 09/15/00

3746 AF #

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Jeffrey Davis

Docket No.: DAVIS100

Serial No.: 09/334,208

Examiner: Solak

Filed : June 15, 1999

Art Unit: 3746

For : METHOD AND APPARATUS FOR CONTROLLING A PUMPING UNIT

Commissioner for Patents  
Washington, DC 20231H11/APB  
9/13/01  
J. SchenckTRANSMITTAL OF APPEAL BRIEF

1. Transmitted herewith in triplicate is the Appeal Brief in this application with respect to the Notice of Appeal filed on July 21, 2001.
2. Status of Applicant

This application is on behalf of

other than a small entity  
 a small entity

3. Attached is a Fee Transmittal Form.

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SEP 11 2001

TECHNOLOGY CENTER R3700

Respectfully submitted,

Date: Aug. 29, 2001  
Signature of AttorneyReg. No. 28.351  
Phone (505) 665-3112Ray G. Wilson  
233 Rover Blvd.  
Los Alamos, New Mexico 87544

## CERTIFICATE OF MAILING/TRANSMISSION (37 CFR 1.8(a))

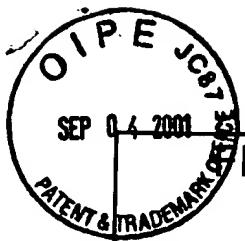
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For FY 1999**

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TOTAL AMOUNT OF PAYMENT \$ 155

Complete if Known  
Application Number: 09/334,208  
Filing Date: June 15, 1999  
First Named Inventor: Jeffrey Davis  
Examiner Name: Solak  
Group/Art Unit: 3746  
Attorney Docket No.: Davis100

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**METHOD OF PAYMENT** (check one)

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Check     Money Order     Other

**FEE CALCULATION (continued)****3. ADDITIONAL FEES**

## Large Entity/Small Entity

Fee Code	Fee \$	Fee Code	Fee \$	Fee Description	Fee Paid
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105 130 205 65 Surcharge – late filing fee or oath

127 50 227 25 Surcharge – late provisional filing fee or cover sheet.

147 2,520 147 2,520 For filing a request for reexamination

112 920\* 112 920\* Requesting publication of SIR prior to Examiner action

113 1,840\* 113 1,840\* Requesting publication of SIR after Examiner action

115 110 215 55 Extension for reply within first month

116 390 216 195 Extension for reply within second month

117 890 217 445 Extension for reply within third month

118 1,390 218 695 Extension for reply within fourth month

128 1,890 228 945 Extension for reply within fifth month

119 310 219 155 Notice of Appeal

120 310 220 155 Filing a brief in support of an appeal 155

121 270 221 135 Request for oral hearing

138 1,510 138 1,510 Petition to institute a public use proceeding

140 110 240 55 Petition to revive – unavoidable

141 1,240 241 620 Petition to revive – unintentional

142 1,240 242 620 Utility issue fee (or reissue)

143 440 243 220 Design issue fee

144 600 244 300 Plant issue fee

122 130 122 130 Petitions to the Commissioner

123 50 123 50 Petitions related to provisional applications

126 180 126 180 Submission of Information Disclosure Stmt.

581 40 581 40 Recording each patent assignment per property (times number of properties)

146 710 246 355 Filing a submission after final rejection (37 CFR 1.129 (a))

149 710 249 355 For each additional invention to be examined (37 CFR 1.129(b))

Other fee (specify) \_\_\_\_\_

Other fee (specify) \_\_\_\_\_

**SUBTOTAL (3) \$ 155**

\*Reduced by Basic Filing Fee Paid

**SUBMITTED BY****Complete (if applicable)**

Printed Name:	Ray G. Wilson	Reg. Number	28,351
Signature:		Deposit Account User ID	



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants: Jeffrey Davis Docket No.: DAVIS100  
Serial No.: 09/334,208 Examiner: Solak  
Filed : June 15, 1999 Art Unit: 3746  
For : METHOD AND APPARATUS FOR CONTROLLING A PUMPING UNIT

**APPEAL BRIEF**

**TABLE OF CONTENTS**

Statement of the Real Party in Interest .....	1
Table of Authorities .....	1
Status of All Claims and Amendments .....	1
Summary of the Invention .....	2
Issue Presented for Review .....	2
Grouping of the Claims .....	3
Argument .....	3
Conclusion .....	5
Appendices	

Appendix A, Claims on Appeal

Appendix B, Search Results

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants: Jeffrey Davis Docket No.: DAVIS100  
Serial No.: 09/334,208 Examiner: Solak  
Filed : June 15, 1999 Art Unit: 3746  
For : METHOD AND APPARATUS FOR CONTROLLING A PUMPING UNIT

**STATEMENT OF THE REAL PARTY IN INTEREST**

Appellant, Jeffrey Davis, is the owner of all right title and interest in the subject patent application.

**RECEIVED**

**TABLE OF AUTHORITIES**

SEP 11 2001

TECHNOLOGY CENTER R3700

*In re Mills*, 16 USPQ 2nd 1430 (Fed. Cir. 1990)

*Ex parte Levengood*, 28 USPQ 2nd 1300, 1302 (Bd. Pat. App. & Inter. 1993)

MPEP 2143.01

MPEP 2144

**STATUS OF ALL CLAIMS AND AMENDMENTS**

This is an appeal from the final rejection (Examiner's Action dated April 27, 2001) of Claims 1-13 currently pending in the subject patent application. Claim 1 is rejected under 35 U.S.C. §103(a) as being unpatentable over Mills in view of Long, Jr. Claims 2 and 5 are rejected under 35 U.S.C. §103(a) as being unpatentable over Mills, in view of Long, Jr., and further in view of Turner et al. Claim 3 is rejected under 35 U.S.C. §103(a) as being unpatentable over Mills, in view of Long, Jr., in further view of Gallaway. Claim 4 is rejected under 35 U.S.C. §103(a) as being unpatentable over

Mills, in view of Long, Jr. and Gallaway, in further view of Turner et al. Claim 6 is rejected under 35 U.S.C. §103(a) as being unpatentable over Mills, in view of Long, Jr. and Turner et al., in further view of Gallaway. Claim 7 is rejected under 35 U.S.C. §103(a) as being unpatentable over Mills, in view of Long, Jr., in further view of Kuehn III et al. Claim 8 is rejected under 35 U.S.C. §103(a) as being unpatentable over Mills, in view of Long, Jr. and Kuehn III et al., in further view of Gallaway. Claim 9 is rejected under 35 U.S.C. §103(a) as being unpatentable over Mills, in view of Long, Jr. Claim 10 is rejected under 35 U.S.C. §103(a) as unpatentable over Mills, in view of Long, Jr., in further view of Gallaway. Claim 11 is rejected under 35 U.S.C. §103(a) as being unpatentable over Mills, in view of Long, Jr. and Gallaway, in further view of Dye. Claims 12 and 13 are rejected under 35 U.S.C. §103(a) as being unpatentable over Mills, in view of Long, Jr., in further view of Kuehn III et al.

### SUMMARY OF THE INVENTION

A control system is provided for a pump assembly associated with a pumping well to reduce the pumping duty cycle of the pump assembly while permitting an engine driving the pump assembly to run continuously. A pneumatic clutch connects the engine to the pump assembly through a pneumatically inflatable bladder so that the bladder can be inflated on the occurrence of selected events to drive the pump assembly to remove liquid from the well. The bladder is inflated with a pressurized gas. In an advantageous embodiment the pressurized gas is natural gas from the well site so that the unit can be run at remote locations without a need to furnish external fuel or other power supplies.

### ISSUES PRESENTED FOR REVIEW

1. Does Long, Jr. properly show or suggest the combination with Mills to make Claims 1 - 13 obvious under 35 U.S.C. §103(a).
2. Does Gallaway properly show or suggest the combination with Mills and Long, Jr. to make Claims 3, 4, 6, 8, 10, and 11 obvious under 35 U.S.C. §103(a).

### GROUPING OF THE CLAIMS

Claims 1-13 should be considered together for the rejection under 35 U.S.C. §103(a) as unpatentable over Mills, in view of Long, Jr. Claims 3, 4, 6, 8, 10, and 11 should be considered together for the rejection under 35 U.S.C. §103(a) as unpatentable over Mills, in view of Long, Jr., in further view of Gallaway.

### ARGUMENT

Applicant has traversed the rejection of independent Claims 1-13 as unpatentable over Mills in view of Long et al. The Examiner has stated that Mills teaches most of the limitations of the claim, but it does not teach a pneumatic clutch, and further states that Long, Jr. et al. teach an air clutch. The rejection concludes that it would be obvious to select the clutch taught by Long, Jr. because Long, Jr. et al. further teach that the clutch has an advantageously increased life.

It is applicant's position that a person of ordinary skill in the pumping apparatus art would not select a pneumatic clutch based on the teachings of either Mills or Long, Jr. et al. First, the sole mention in Mills about a clutch is the following sentence at Col. 7, line 6-9, referenced by the action:

*The apparatus preferably is provided with 12 volts at S so the battery of an internal combustion engine can be used as a power source with the contacts of solenoids 42 and 43 being utilized to disengage a clutch means or to interrupt the ignition circuitry of the engine.*

There is no suggestion of any problem with the life of a clutch or as to the type of clutch that might be selected.

Long, Jr. does state at Col. 1, lines 401-44 that "positive disconnection will typically improve the life of the clutch inasmuch as reduced scrubbing and sliding of the clutch elements against one another during idle and thus reduce both the generation of frictional heat and consequently overall operating temperatures." But the pneumatic operation of the clutch is taught to be conventional (Col. 4, lines 7-9: "The mounting assemblies 76 cooperate with the air bladder 64 to provide bi-directional axial

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9/16/01*

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translation of the ribbed pressure plate 70 in a conventional manner . . ."). The improved reduction in scrubbing and sliding of the clutch elements is provided by the array of helical splines, not the pneumatic bladder: "The arrays of helical splines 90 and 94 and 108 and 110 now cooperate to fully separate and substantially eliminate drag by axially displacing the first friction disk 92 and the movable clutch plate 106 in response to small inertial and frictional forces." (Col. 5, lines 26-30).

To be a proper suggestion for a pneumatic clutch to combine with Mills on the basis stated in the rejection, Long, Jr. et al. would have to first show some advantage from the use of a pneumatic clutch. But there is no suggestion by Long, Jr. et al. that the pneumatic aspect of the clutch provides the benefits noted by Long, Jr. et al. That is, given the teachings of Mills, one might look to Long, Jr. et al. for its benefits of long life only after a pneumatic clutch had been selected for some reason not shown or suggested by either Mills or Long, Jr. et al.

It is clearly proper to combine references where one of the references provides some motivation to do so (MPEP 2143.01 and the references cited therein). However, Mills provides only a generic reference to a clutch and Long, Jr. et al. only teach a generic benefit, longer life, for the pneumatic clutch described therein. A generic benefit does not provide any proper motivation for selecting one reference over a myriad of other references with a similar benefit. Indeed, a simple patent search in the data base of the USPTO of U.S. patents issued since 1976 of the term "improved clutch" provides 528 such patents. Appendix B is a partial listing (150 patents) that shows friction clutches, electromagnetic clutches, torque clutches, and the like. What is the motivation for appellant to select the improved clutch shown by Long, Jr. et al.? None is provided by Mills, Long, et al., or the Examiner, other than a generic motivation.

It is certainly true that the motivation of appellant for selecting a pneumatic clutch does not have to be the same as the motivation suggested by the Examiner for selecting the pneumatic clutch of Long, Jr. et al. (MPEP 2144, citing *Ex parte Levengood*, 28 USPQ 2nd 1300, 1302 (Bd. Pat. App. & Inter. 1993)). But the same

motivation suggested by the Examiner would apply to the 528 "improved clutches" described in the 528 issued U.S. patents.

Thus, neither of the references shows or suggests that a pneumatic clutch has any beneficial application to a well pumping assembly. The only suggestion for combining a pneumatic clutch with a well pumping assembly is applicant's specification, but references may not be combined based on applicant's suggestion. This is impermissible hindsight.

Claims 3, 4, 6, 8, 10, and 11 all recite a limitation directed to the use of natural gas from a gas well to inflate the bladder to connect the engine to the pump assembly. The Examiner comments that Gallaway discloses a method using pressurized gas from a well to activate a pump and that this method was advantageously cost effective and it would have been obvious to use gas from a well in appellant's invention for cost effectiveness. Gallaway uses gas from a well to power an air motor, which, in turn, drives a pump.

It is appellant's position that the Examiner has provided no viable motive from Gallaway to provide natural gas from a well site as a pressurizing medium for a pneumatic clutch. All of the limitation in the claims must be considered (MPEP 2143.03). Appellant uses natural gas from the well site to actuate a clutch. Gallaway teaches the use of natural gas only as a medium to power an engine. There is nothing in Gallaway or any of the other references to suggest the use of natural gas to actuate a clutch for any purpose. The fact that natural gas could be used to actuate a clutch does not make the combination obvious in the absence of some suggestion to do so (*In re Mills*, 16 USPQ 2nd1430 (Fed. Cir. 1990)).

## CONCLUSION

Appellant believes that the Examiner has not adequately supported the stated reasons for the rejections of currently pending Claims 1-13. Appellant has clearly described and claimed an apparatus which functions in a different and unobvious manner from that of the references cited alone and in combination.

Respectfully submitted,

Date: Aug. 29, 2001

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Signature of Attorney

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Los Alamos, New Mexico 87544

## APPENDIX A - CLAIMS ON APPEAL

1. A method for reducing the pumping duty cycle of a pump assembly associated with a pumping well comprising the steps of:

5 continuously running an engine;

connecting the engine with a pump assembly through a clutch assembly having a pneumatically inflatable bladder for connecting a hub of the clutch with a clutch plate to transmit rotary motion from the engine to the pump assembly;

10 determining a selected event to actuate the clutch to connect the engine with the pump assembly; and

providing a pressurized gas on the occurrence of the selected event to inflate the bladder to connect the pump assembly with the engine to remove liquid from the gas well to maintain an inflow of hydrocarbons from a producing formation.

2. A method according to Claim 1, wherein the selected event is selected from the events comprising a periodic time interval and a liquid level in the gas well.

3. A method according to Claim 1, where the pressurized gas is supplied from natural gas exiting the gas well.

4. A method according to Claim 3, wherein the selected event is selected from the events comprising a periodic time interval and a liquid level in the gas well.

5. A method according to Claim 1, where the selected event is determined by monitoring the liquid level in the gas well with time and determining a pumping cycle effective to maintain an inflow of hydrocarbons from the producing formation.

6. A method according to Claim 5, where the pressurized gas is supplied from natural gas exiting the gas well.

7. A method according to Claim 1, where the selected event is determined by directly monitoring the level of liquid in the well and actuating the pump assembly to maintain the liquid level between selected elevations to maintain an inflow of hydrocarbons from the producing formation while reducing the pump assembly duty cycle.

8. A method according to Claim 7, where the pressurized gas is supplied from natural gas exiting the well.

9. A pumping assembly for maintaining hydrocarbon production from a well, comprising:

a pumping assembly for pumping liquid from the gas well;

an engine for driving the pumping assembly;

a pneumatic clutch assembly having a pneumatically inflatable bladder for connecting a hub of the clutch plate to transmit rotary motion from the engine to the pump assembly; and

a control unit for inflating the bladder when needed to pump liquid from the gas well to maintain hydrocarbon production from the well while enabling the engine to run continuously.

10. A pumping assembly according to Claim 9, wherein the control unit connects gas from the well to the pneumatic clutch for inflating the bladder.

11. A pumping assembly according to Claim 10, wherein the control unit is a timer for periodically actuating the clutch.

12. A pumping assembly according to Claim 9, further including means for monitoring a liquid level in the gas well and outputting a signal indicative of the liquid level.

13. A pumping assembly according to Claim 12, wherein the control unit receives the signal indicative of the liquid level and actuates the clutch to maintain the liquid level below a maximum height to maintain hydrocarbon production from the well.

**APPENDIX B**  
**SEARCH RESULTS**

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"improved clutch": 528 patents.

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"improved clutch"

PAT. NO. Title

- 1 [6,220,415](#) [Hold down fastener](#)
- 2 [6,208,053](#) [Adjustable torque hysteresis clutch](#)
- 3 [6,202,818](#) [Friction clutch with compensation for wear](#)
- 4 [6,186,297](#) [Controllable torque transmission device](#)
- 5 [6,183,368](#) [One-way over-running flex coupling](#)
- 6 [6,138,809](#) [Insulated electromagnetic coil for electromagnetic clutch](#)
- 7 [6,138,806](#) [Clutch disk with varied friction values](#)
- 8 [6,135,890](#) [Torsional vibration damper](#)
- 9 [6,128,984](#) [Micro-torque limiting, shock limiting tool and subassembly](#)
- 10 [6,095,937](#) [Torque-responsive clutch with confined rollers](#)
- 11 [6,088,933](#) [Drive rod and clutch disk for a paint brush and roller drying tool](#)
- 12 [6,085,883](#) [Friction clutch](#)
- 13 [6,085,882](#) [Friction clutch](#)
- 14 [6,076,429](#) [Clutch for a differential](#)
- 15 [6,071,211](#) [Idle drive torque control for automated vehicle master clutch](#)
- 16 [6,062,358](#) [Hydrokinetic torque converter and lockup clutch therefor](#)
- 17 [6,061,619](#) [Electronic clutch management](#)
- 18 [6,050,053](#) [Clutch control for a clutch-actuated bag closing head](#)
- 19 [6,029,787](#) [Self-adjusting friction clutch](#)
- 20 [6,022,295](#) [Touch point identification for vehicle master clutch](#)
- 21 [6,021,879](#) [Rotating clutch balance apparatus](#)
- 22 [6,016,899](#) [Clutch disk with flexible bearing](#)

23 6,007,415 **I** Sanding disks  
24 5,988,026 **I** Screw feed and driver for a screw driving tool  
25 5,980,428 **I** Vehicle launch automated master clutch control  
26 5,975,267 **I** Unilateral disc-type friction clutch with thermal distortion avoidance feature  
27 5,971,124 **I** Friction clutch  
28 5,971,120 **I** Fluid operated modular clutch-brake device  
29 5,957,896 **I** Medication delivery pen  
30 5,947,247 **I** Continuously variable fan drive clutch  
31 5,947,210 **I** Power screwdriver  
32 5,943,911 **I** Electromechanical friction clutch control for a manual transmission  
33 5,941,923 **I** Method of and apparatus for regulating the transmission of torque  
34 5,937,979 **I** Continuosly variable fan drive clutch  
35 5,928,083 **I** One-way over-running flex coupling  
36 5,927,460 **I** Clutch disk with a double facing spring  
37 5,927,454 **I** Input shaft sleeve for a clutch release assembly  
38 5,921,966 **I** Medication delivery pen having an improved clutch assembly  
39 5,901,826 **I** Clutch pressure plate with backing plate  
40 5,898,229 **I** Starter with improved one-way clutch structure  
41 5,897,204 **I** Anti-jamming clutch mechanism for a clamping apparatus  
42 5,893,879 **I** Apparatus for the closure of wide skin defects by stretching of skin  
43 5,884,515 **I** Electromagnetic clutch for electronic locks  
44 5,875,877 **I** Polymer derived fiber reinforced ceramic composite clutch  
45 5,865,109 **I** Drive mechanism  
46 5,857,550 **I** Polymer derived fiber reinforced ceramic matrix composite clutch  
47 5,855,266 **I** Fan clutch for vehicles configured for low engine speed  
48 5,846,133 **I** Adjustable torque clutch for remote controlled circuit breakers  
49 5,829,566 **I** Clutch pack with double-sided clutch plates  
50 5,813,204 **I** Round baler having tailgate-responsive clutch

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PAT.  
NO.      Title

- 51 [5,809,924](#) **T Clutch controlled steering device**
- 52 [5,803,224](#) **T Friction clutch**
- 53 [5,791,576](#) **T Clutch mechanism for a double bearing type reel for fishing**
- 54 [5,782,327](#) **T Hydrokinetic torque converter and lockup clutch therefor**
- 55 [5,782,175](#) **T Knotter clutch control for square balers**
- 56 [5,779,388](#) **T Printed circuit board retainer**
- 57 [5,746,381](#) **T Fishing reel with clutch mechanism utilizing an engaging protrusion and engaging recesses**
- 58 [5,738,189](#) **T Adjustment mechanism for disc brake, with improved over-torque clutch**
- 59 [5,738,177](#) **T Production assembly tool**
- 60 [5,737,944](#) **T Washing machine with improved drive structure for rotatable tub and agitator**
- 61 [5,720,374](#) **T Backfill pressure control valve for a rotating clutch**
- 62 [5,711,407](#) **T Torsional vibration damper**
- 63 [5,711,192](#) **T Indexer with improved clutch**
- 64 [5,709,130](#) **T Transmission clutch**
- 65 [5,701,574](#) **T Method of producing a sliding sleeve for the synchronizer means of a change-speed gear**
- 66 [5,669,480](#) **T Clutch operating apparatus**
- 67 [5,667,048](#) **T Clutch disengaging device**

68 5,664,656 **T** Centrifugal clutch

69 5,655,421 **T** Micro-torque limiting, shock limiting production tool

70 5,653,323 **T** Clutch release bearing assembly

71 5,651,277 **T** Clutch mechanism for automatic washer

72 5,647,569 **T** Rotating Christmas tree stand

73 5,642,641 **T** Dome shaped extruded location feature tool for making the location feature and method for locating adjoining plates using the location feature

74 5,640,863 **T** Clutch mechanism for door lock system

75 5,632,365 **T** Friction clutch

76 5,630,773 **T** Method and apparatus for slip mode control of automatic clutch

77 5,628,389 **T** Friction clutch

78 5,617,168 **T** Camera with spool positioning mechanism

79 5,609,232 **T** Electromagnetic clutch with permanent magnet return mechanism

80 5,607,036 **T** One-way clutch with stretchable spring member

81 5,601,169 **T** Fluid pressure overload release clutch

82 5,597,334 **T** Outboard drive transmission system

83 5,588,517 **T** Clutch operating apparatus

84 5,579,881 **T** Friction clutch, such as for a motor vehicle, with flat spring characteristic

85 5,579,663 **T** Clutch cable noise and vibration isolator

86 5,575,364 **T** Apparatus for transmitting force between rotary driving and driven units

87 5,562,193 **T** Method and apparatus for installing and adjusting a clutch assembly

88 5,554,002 **T** Electric fan having two wind shifting modes

89 5,551,548 **T** Clutch assembly for an off-highway transmission

90 5,538,120 **T** Clutch bracket retainer for torque sensing clutch mechanisms

91 5,520,274 **T** Friction clutch

92 5,518,099 **T** Friction clutch driven plates

93 5,505,676 **T** Clutch torque control

94 5,493,979 **T** Independent guide system for upper roller feeder

95 5,489,011 **T** Vehicle clutch cable self-adjusting mechanism

96 5,486,196 **T** Apparatus for the closure of wide skin defects by stretching of skin

97 5,480,270 **T** Clutch for threading attachment

98 5,450,934 **T** Friction clutch

99 5,448,959 **T** Belt drive puller mechanism

100 5,437,334 **T** Edger

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"improved clutch"

PAT. NO. Title

- 101 [5,435,797](#) [Fluid-operated clutch](#)
- 102 [5,435,425](#) [Clutch brake and method for attaching a clutch brake to a shaft](#)
- 103 [5,423,405](#) [Clutch release bearing device](#)
- 104 [5,413,202](#) [Friction generating torque transmitting device](#)
- 105 [5,398,089](#) [Takeup spool drive with clutch mechanism and method of operation](#)
- 106 [5,377,799](#) [Electromagnetic clutch with improved actuation](#)
- 107 [5,377,798](#) [Clutch plate with blocking wall for a viscous fluid clutch](#)
- 108 [5,377,797](#) [Clutch engagement control method in response to transmission shift lever position](#)
- 109 [5,377,796](#) [Apparatus for transmitting force between rotary driving and driven units](#)
- 110 [5,366,433](#) [Safety clutch and its use in capping milk cartons](#)
- 111 [5,362,010](#) [Clutch device for fishing reel](#)
- 112 [5,355,986](#) [Clutch and disc brake friction assembly](#)
- 113 [5,352,161](#) [Capacity control for nested clutch automatic transmission](#)
- 114 [5,350,133](#) [Fishing reel having an improved clutch mechanism](#)
- 115 [5,337,874](#) [Method/system for determining clutch touch point](#)
- 116 [5,337,867](#) [Torque converter having a continuous slip bypass clutch with multiple friction plates](#)
- 117 [5,337,827](#) [Pressure-controlled well tester adapted to be selectively retained in a predetermined operating position](#)
- 118 [5,333,812](#) [Clutch structure for a fishing reel](#)

119 5,318,162 **T** Release apparatus for pull-type friction clutches  
120 5,307,965 **T** Ground-driven top dresser utilizing easily actuated clutch mechanism  
121 5,301,783 **T** Dual pressure accumulator  
122 5,295,812 **T** Electromagnetic clutch and pulley bearing arrangement  
123 5,285,882 **T** Clutch with spacer for supporting a bearing  
124 5,284,234 **T** Centrifugal clutch  
125 5,277,288 **T** Clutch for tire lift/carrier winch  
126 5,265,708 **T** Clutch for tire lift/carrier winch  
127 5,257,687 **T** Friction clutch driven plates  
128 5,251,875 **T** Lifting device for vehicle parts  
129 5,246,398 **T** Clutch disk with torsional damper device  
130 5,242,040 **T** Structure of rotor of electromagnetic clutch  
131 5,236,070 **T** Retracting strap plate clutch assembly  
132 5,234,090 **T** Clearance adjustment for a multi-plate fluid operated friction clutch  
133 5,226,516 **T** Progressive engagement clutch  
134 5,226,265 **T** Apparatus and method for lifting tilt-up wall constructions  
135 5,219,053 **T** Unidirectional clutch with shell races  
136 5,206,805 **T** Continuously variable transmission clutch control system including special start mode operation  
137 5,199,502 **T** Edger with improved rotary blade driving device  
138 5,195,621 **T** Torque converter and clutch with a turbine ring friction interface  
139 5,188,316 **T** Aircraft autothrottle system  
140 5,179,875 **T** Turbine speed controller for an automatic transmission  
141 5,176,236 **T** Facing material for wet clutch plate and methods for fabricating and applying same  
142 5,176,234 **T** Method of regulating the operation of automatic clutches  
143 5,165,485 **T** Edger with improved blade cover assembly  
144 5,161,660 **T** Clutch plate with plural dampers  
145 5,156,244 **T** Torque sensing automatic shut-off and reset clutch for screwdrivers, nutsetters and the like  
146 5,156,217 **T** Edger with improved rear wheel adjustment  
147 5,154,269 **T** Clutch mechanism for a printing press  
148 5,148,904 **T** Clutch cover assembly  
149 5,139,091 **T** Edger with improved operating lever assembly  
150 5,129,500 **T** Control valve for timed clutch engagement

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<a href="#">Help</a>			